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EXAMINER	
SOOHOO, TONY GLEN	
ART UNIT	**PAPER NUMBER**
1723	

DATE MAILED: 02/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

A9

Office Action Summary	Application No.	Applicant(s)	
	09/876,459	LEMKE, TRAVIS A.	
	Examiner	**Art Unit**	
	Tony G Soohoo	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5 and 8-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-5,8-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show clearly the valves 914A, 914B, 9120. The circles depicting the valve is non-standard and should be changed to s symbol which differs from the circular symbol of the sensors, such as the valves shown by 912, 916, 958, as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

1. Note: the only conductivity sensors or probes are elements 414A, 414B, 814A, 814B, and 914A, and 914B.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 4-5, 8-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 points out a chemical mixing system for "preparing a slurry" as recited in line 1 of the preamble of the claim, however then further points out and claims the slurry itself (see part e), thereby claiming the final product which is to be made by the apparatus. If the final slurry product is claimed then it appears that the device does not need to prepare the slurry itself, since it has been already been made in part (e). Whereby the preamble points out that the invention is a "chemical mixing system for preparing [the] slurry", the slurry itself can not be claimed since the invention is to a device to make the slurry and not to an invention of the structure of the slurry itself. Accordingly, part (e) renders unclear in scope of the protection and the relationship of the slurry to the mixing system structure which prepares the slurry itself.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al 5647391 in view of Lascombes 5318750, and further in view of Leverenz et al 3710811.

Note: With regards to the function of the use of insoluble solid particles as one mix component as recited in the preamble, and the recitation of part (e) of claim to the slurry material worked upon by the mixing system itself, the material in which the device operates id denied structural patentable distinction. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed, and the contents thereof, does not structurally differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Material or Article Worked Upon by Apparatus
MATERIAL OR ARTICLE WORKED UPON DOES NOT LIMIT APPARATUS CLAIMS

"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

In re Young, a claim to a machine for making concrete beams included a limitation to the concrete reinforced members made by the machine as well as the structural elements of the machine itself. The court held that the inclusion of the article formed within the body of the claim did not, without more, make the claim patentable.

In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967), an apparatus claim recited "[a] taping machine comprising a supporting structure, a brush attached to said supporting structure, said brush being formed with projecting bristles which terminate in free ends to collectively define a surface to which adhesive tape will detachably adhere, and means for providing relative motion between said brush and said supporting structure while said adhesive tape is adhered to said surface." An obviousness rejection was made over a reference to Kienzle which taught a machine for perforating sheets. The court upheld the rejection stating that "the references in claim 1 to adhesive tape handling do not expressly or impliedly require any particular structure in addition to that of Kienzle."

The perforating device had the structure of the taping device as claimed, the difference was in the use of the device, and "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself." Note that this line of cases is limited to claims directed to machinery which works upon an article or material in its intended use.

a. CHAN ET AL REFERENCE :

Chan et al (Chan) teaches a mix volume vessel 10, 14 which is connected to source components 22, 26; a control system 28, a first sensor 36 and sensor signal for each source whereby probe is a conductivity probe sensor meter 36 for measuring the amount of component(s) in the mixed volume of liquid of the mix vessel (claims 1, 10); and respective peristaltic vacuum pump valves 30, 32 (claim 12) to regulate the chemical components via control 300 and control signal.

Chan et al discloses all of the recited subject matter as defined within the scope of the claims with the exception of "[part c] varying the rate of addition of the at least one chemical component". Additionally the Chan et al reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of with exception of a 1st conductivity sensor for detecting the amount of chemical added to the mix volume vessel 14 and with the exception of a recirculation loop; whereby the conductivity probe is in the recirculation loop.

b. LASCOMBES REFRENCE:

With regards to a varying feed control of addition of the chemical component, the Lascombes reference teaches a mix volume conduit between 210, 220, 230, 240, 250 and 31 which is connected to source components 1,2,3,4,5 having solid particulate salt; a control system 300, first sensors conductivity (pH) cells 210, 220, 230, 240, 250 for each source and including a pH conductivity sensor meter 200, 201 for measuring the amount of solid component dissolved in the mixed volume of liquid; and respective *variable-flow rate pumps* 110, 120, 130, 140, 150 to regulate the flow rate of chemical components via control 300; and a pump 31 urge the fluid into motion, see column 3, lines 23-30, and 46-52; and column 4, lines 33-37.

Whereby Lascombes teaches that one may use a controller to control a variable flow rate pumps to control and regulate the flow rate of chemical component additive (i.e. vary the addition caused by the variable flow rate pump). It is noted that a variable flow pump may operate and function as a structural equivalent to that of a valve

whereby the flow may be shut off when the pump is not functioning and the flow valve may be open when the pump is operating.

Chan teaches the control of a peristaltic pump in response to the measured conductivity, see especially, claims 14-15 of Chan et al. Although initiation of the pump is clearly described, however it is unclear a flow rate of addition is varied. It is noted that a peristaltic pump is an operative volume type pump.

In light of the teaching that a variable flow pump may be used to control the flow rate addition of material into a mixture tank, it is deemed that it would have been obvious to one of ordinary skill in the art to substitute for the peristaltic pump 30, 32 of Chan et al with a variable flow rate pump such as the type of taught by Lascombes such that one may continuously adjust and vary the flow rate of chemical component addition to the mixing tank so that a more precise regulation of the additive is achieved. (claims 1-2, 8, 10, 12).

With regards to a 1st sensor for detecting the amount of chemical added to the mix volume vessel 14 and a tank 14 having an outlet to remove the mixture vessel 14 to a point of use (claim 13), The Lascombes reference as pointed out above, teaches the use of both a 1st sensor to measure the amount of source material added to the mixture and a 2nd pH conductivity mixture to measure the final mixture. Also Lascombes teaches the use of an outlet 30 to send the mixture to a final point of use 100.

In view of the teaching of Lascombes that a more accurate control of the mixture may be performed with the use of both a 1st sensor to measure the source and a 2nd

sensor to measure the mixture, it is deemed that it would have been obvious to one of ordinary skill in the art to provide for the device of Chan, with a 1st sensor at each of the sources 22, 26 in connection with the control 28 as shown by Lascombes such that one may better control the additive amount of the source components in addition to monitor the final mixed product in the mix vessel 14.

Also, in view of the teaching of teaching that one my provide an outlet to a volume whereby a mixture is made such that it may be dispensed to a final use point, it is deemed that it would have been obvious to one of ordinary skill in the art to provide with Chan et al with an outlet so that one may easily use and dispense the mixture 12 which was made in the tank 14 for final use.

c. LEVERENZ reference

The Chan et al reference as modified by the Lascombes reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of a recirculation loop; whereby the conductivity probe is in the recirculation loop.

The Levering et al reference teaches that a mix volume tank 14 or 12, may be provided with a recirculation loop 38, 16, 38 to that it may proper mixture while also providing a means to add additional source material via tank 20 in response to the concentration sensor 18. In view of teaching of Levering et al that one may provide a recirculation loop in the mix volume vessel for a better manner to maintain the desired concentration of material mixture in a mix vessel, it is deemed that it would have been obvious to one of ordinary skill in the art to provide for the mix vessel tank 14 of Chan et

al with a recirculation line connected back to the tank such that the concentration maintained by the tank 14 is better maintained. With regards to claims 9 and 11, it is noted that the mix vessel is part of a recirculation loop, and since a recirculation of material as modified by the teaching by Leverenz et al causes fluid to pass though the loop including the mixing tank, the probe may be deemed as being in the recirculation loop. Nonetheless, the placement of a sensor probe in a recirculation return branch of a recirculation mixer is deemed to be obvious to one of ordinary skill in the art to move the probe along any where along the recirculation loop, since it has been held that rearranging parts of an invention involves only routine skill in the art. (In re Japikse, 86 USPQ 70.). Whereby a person having ordinary skill in the art would have to merely change the position of an element without destroying the function of the probe for conductivity measurement, such motivation for the change in position may be for reasons of ease, and convince of manufacture of the device, or a more desirable measurement of the conductivity at a more advantageous position in the recirculation loop.

d. With regards to claims 4-5, the Chan reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of the tank 14 being made of a particular material being of the group of claims 4 and 5.

It is noted that the materials of UHMW polyethylene, fluorinated polymer such as PTFE, or polypropylene, is commonly known in the art for the property of the resistance to corrosion and stains, and the ease of cleaning.

Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, In re Leshin, 125 USPQ 416, It is deemed that it would have been obvious to one of ordinary skill in the art to make the mix vessel 14 out of UHMW polyethylene, fluorinated polymer such as PTFE, or polypropylene, such that one may provide resistance to corrosion and stains, and the ease of cleaning of the inside of the tank that may occur due to the mixed fluid.

Response to Arguments

3. Applicant's arguments filed 10/17/2003 have been fully considered but they are not persuasive.

Applicant argues that the prior art does not show, either alone or in combination "a chemical mixing system which includes an insoluble solids slurry" and does not have a 1st conductivity sensor "to detect when a combined chemical components has a desired insoluble solids content".

In response, the Chan reference as modified by the Lascombes and Leverenz et al reference as discussed above, discloses all of the recited limitations of the claims, including a mixing vessel, a conductivity sensor at the vessel to measure the mixture (Chan reference), a conductivity sensor for conductivity measurements which a controller processes the signals from the conductivity sensor to provide an output signal to control a valve pump for operation to control as least the initiation of chemical additive flow into the mixture (Chan in view of Lascombes), or even of that the signal

controlling the varying the flow rate of the additive by variable flow rate pumps, and a recirculation feature (Leverenz).

As combined, the references teach and render obvious each and every structural feature of the claimed mixing system. However, it is acknowledged by the examiner that the references does not discuss a measurement of "insoluble solids" by the conductivity sensors.

It is further noted, the determination of insoluble solids is performed by applicant's conductivity sensors. In the same manner, the prior art conductivity sensors may be used to measure the conductivity of the slurry in the mixing system which may be used to further calculate insoluble solids. There is no structural distinction as claimed to the conductivity sensors to distinguish itself from that of the prior art other than the intended use of the data gleaned by conductivity measurement. Both the prior art and applicant's conductivity sensors operate as devices to measure conductivity data and both have a control to feedback and signal the appropriate amount of material to be added to the mixture. There is not structural distinction other than intended use.

The use of conductivity sensors as a feedback control has been established and found as prior art by the evidence supplied by the Chan, and Lascombes references. The use of a conductivity sensor to determine soluble solids is an intended use of the conductivity senor/probes and is not structurally distinguishing in the apparatus claims. It has been long held that the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967).

Thus the claims are deemed not allowable over the art of record for reasons outlined above in the rejection of the claims above.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G Soohoo whose telephone number is (571) 272 1147. The examiner can normally be reached on 7:00 AM - 5:00 PM, Tues. - Fri.. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tony G Soohoo
Primary Examiner
Art Unit 1723

tgs